

HP StorageWorks

Enterprise File Services Remote Copy Utility 1.2

reference manual



392364-001

Part number: 392364-001
First edition: May 2005



Legal and notice information

© Copyright 2005 Hewlett-Packard Development Company, L.P.

© Copyright 2003–2005 Riverbed Technology, Inc.

Hewlett-Packard Company makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

This document contains proprietary information, which is protected by copyright. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of Hewlett-Packard. The information is provided "as is" without warranty of any kind and is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Linux is a trademark of Linus Torvalds in the United States and in other countries.

Microsoft, Windows, Windows NT, Windows 2000, Outlook, and Windows Internet Explorer are trademarks or registered trademarks of Microsoft Corporation in the United States and in other countries.

UNIX is a registered trademark in the United States and in other countries, exclusively licensed through X/Open Company, Ltd.

For detailed copyright and license agreements, see [Appendix A, "Software Licenses."](#) For modified source code (where required), see the HP technical support site at <http://www.hp.com>.

Certain libraries were used in the development of this software, licensed under GNU Lesser General Public License, Version 2.1, February 1999. For the copyright and license agreement, see the [Appendix A, "Software Licenses."](#) For a list of libraries and source material (where required), see the HP technical support site at <http://www.hp.com>.

Enterprise File Services Remote Copy Utility Reference Manual

Contents

Introduction	3
About This Guide.....		3
Hardware and Software Dependencies.....		5
Additional Resources		5
Contacting HP		6
HP Storage Web Site.....		7
HP NAS Services Web Site		7
Chapter 1	The HP EFS Remote Copy Utility	9
Overview		9
Features		10
Chapter 2	Installing and Using the HP EFS Remote Copy Utility	11
Installing the HP EFS RCU		11
Copying Data.....		12
Mirroring Data.....		12
Transparently Prepopulating CIFS Data		13
Monitoring Data.....		14
Authenticating Clients		15
Creating Log Files		15
Scheduling Tasks for the HP EFS RCU.....		16
Additional HP EFS RCU Features		17
Chapter 3	The HP EFS Remote Copy Utility Commands	19
Client Actions		19
Client Options.....		21
Server Actions.....		22

Monitoring Actions.....	23
Logging Actions	24
Global Options.....	26
Appendix A Software Licenses	29
log4cxx Library	29
Index	31

Introduction

In This Introduction

Welcome to the *HP StorageWorks Enterprise File Services Remote Copy Utility Reference Manual*. Read this introduction for an overview of the information provided in this guide and for an understanding of the documentation conventions used throughout. This introduction contains the following sections:

- ◆ “[About This Guide](#),” next
- ◆ “[Hardware and Software Dependencies](#)” on page 5
- ◆ “[Additional Resources](#)” on page 5
- ◆ “[Contacting HP](#)” on page 6

About This Guide

The *HP StorageWorks Enterprise File Services Remote Copy Utility Reference Manual* is a reference manual for the HP EFS Remote Copy Utility (HP EFS Remote Copy Utility). The HP EFS Remote Copy Utility is a command-line program that efficiently transfers files and directories across the Wide Area Network (WAN) and assists backup and data replication products moving data across the WAN.

Types of Users

This guide is written for storage and network administrators who are familiar with administering and managing WAN networks, and backing up and replicating data over the WAN.

Organization of This Guide

The *HP StorageWorks Enterprise File Services Remote Copy Utility Reference Manual* includes the following chapters:

- ◆ [Chapter 1, “The HP EFS Remote Copy Utility,”](#) provides an overview of the HP EFS Remote Copy Utility and its features.

- ◆ [Chapter 2, "Installing and Using the HP EFS Remote Copy Utility,"](#) describes how to install and schedule HP EFS Remote Copy Utility tasks. It also describes how to copy, mirror, and monitor data on client and server machines and how to transparently prepopulate CIFS data on HP EFS WAN Accelerators.
- ◆ [Chapter 3, "The HP EFS Remote Copy Utility Commands,"](#) provides a reference for the HP EFS Remote Copy Utility commands and options.
- ◆ [Appendix A, "Software Licenses,"](#) provides the copyright material and license agreement for the third-party software used in the development of the HP EFS Remote Copy Utility.

A comprehensive index directs you to areas of particular interest.

Document Conventions

This manual uses the following standard set of typographical conventions to introduce new terms, illustrate screen displays, describe command syntax, and so forth.

Convention	Meaning
<i>italics</i>	Within text, new terms and emphasized words appear in <i>italics</i> .
boldface	Within text, commands, keywords, identifiers (names of classes, objects, constants, events, functions, program variables), environment variables, filenames, Graphical User Interface (GUI) controls, and other similar terms appear in boldface .
Courier	Information displayed on your terminal screen and information that you are instructed to enter appear in a Courier typeface.
KEYSTROKE	Keys that you are to press appear in uppercase letters in Helvetica font.
< >	Within syntax descriptions, values that you specify appear in angle brackets. For example: interface <ipaddress>
[]	Within syntax descriptions, optional keywords or variables appear in brackets. For example: ntp peer <addr> [version <number>]
{ }	Within syntax descriptions, required keywords or variables appear in braces. For example: {delete <filename> upload <filename>}
 	Within syntax descriptions, the pipe symbol represents a choice to select one keyword or variable to the left or right of the symbol. (The keyword or variable can be either optional or required.) For example: {delete <filename> upload <filename>}

Hardware and Software Dependencies

The following table summarizes the hardware, software, and operating system requirements for the HP EFS Remote Copy Utility.

HP System Component	Hardware Requirements	Software Requirements Operating System Requirements
HP EFS Remote Copy Utility	<ul style="list-style-type: none"> Windows machines (including Windows 95, 98, NT, and so forth), UNIX servers running a CIFS server, and Network Attached Storage (NAS) filers to be data sources and targets, when you specify a Universal Naming Convention (UNC) or mapped drive path. 	<ul style="list-style-type: none"> Any client or server machine running Windows 2000 or later operating system.

NOTE: The HP EFS Remote Copy Utility depends on certain CIFS Application Programming Interfaces (APIs). While these APIs are supported on all Microsoft Windows platforms, they might not be supported on all NAS solutions such as Samba. (You can use the HP EFS Remote Copy Utility to back up Samba shares if the data center is a Windows machine.)

Additional Resources

This section describes the following resources that supplement the information in this guide:

- ◆ Related HP documentation
- ◆ Online Documentation
- ◆ Related technical reference books

Related HP Documentation

You can access the complete document set for the HP EFS WAN Accelerator from the *HP StorageWorks EFS WAN Accelerator Documentation Set CD-ROM*:

- ◆ *HP StorageWorks Enterprise File Services WAN Accelerator Installation and Configuration Guide* describes how to install and configure the HP EFS WAN Accelerator.
- ◆ *HP StorageWorks Enterprise File Services WAN Accelerator Command-Line Interface Reference Manual* is a reference manual for the command-line interface for the HP EFS WAN Accelerator. It lists commands, syntax, parameters, and example usage.
- ◆ *HP EFS WAN Accelerator Management Console User's Guide* describes how to use the HP EFS WAN Accelerator Management Console to administer and monitor your HP system.

- ◆ *HP StorageWorks Enterprise File Services WAN Accelerator Manager User's Guide* describes how to install, configure, and administer a network made up of multiple HP EFS WAN Accelerators using the HP StorageWorks Enterprise File Services WAN Accelerator Manager.

Online Documentation

The HP EFS WAN Accelerator documentation set is periodically updated with new information. To access the most current version of the HP EFS WAN Accelerator documentation and other technical information, consult the HP support site located at <http://www.hp.com>.

Related Reading

To learn more about network administration, consult the following books:

- ◆ *Microsoft Windows 2000 Server Administrator's Companion* by Charlie Russell and Sharon Crawford (Microsoft Press, January 2000)
- ◆ *Common Internet File System (CIFS) Technical Reference* by Storage Networking Industry Association (Storage Networking Industry Association, 2002)
- ◆ *TCP/IP Illustrated, Volume I, The Protocols* by W. R. Stevens (Addison-Wesley, 1994)
- ◆ *Internet Routing Architectures* (2nd Edition) by Bassam Halabi (Cisco Press, 2000)

Contacting HP

This section describes how to contact HP.

NOTE: Do not load any other software on your HP StorageWorks EFS WAN Accelerator, as doing so will void your support agreement and you will not be able to receive HP technical support.

Technical Support

Telephone numbers for worldwide technical support are listed on the following HP web site: <http://www.hp.com/support>. From this web site, select the country of origin. For example, the North American technical support number is 800-633-3600.

NOTE: For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before calling:

- ◆ Technical support registration number (if applicable)
- ◆ Product serial numbers
- ◆ Product model names and numbers

- ◆ Applicable error messages
- ◆ Operating system type and revision level
- ◆ Detailed, specific questions

HP Storage Web Site

The HP web site has the latest information on this product, as well as the latest drivers. Access the storage site at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this web site, select the appropriate product or solution.

HP NAS Services Web Site

The HP NAS Services site allows you to choose from convenient HP Care Pack Services packages or implement a custom support solution delivered by HP ProLiant Storage Server specialists and/or our certified service partners. For more information see us at http://www.hp.com/hps/storage/ns_nas.html.

CHAPTER 1

The HP EFS Remote Copy Utility

In This Chapter

This chapter provides an overview of the HP EFS Remote Copy Utility (HP EFS RCU). It contains the following sections:

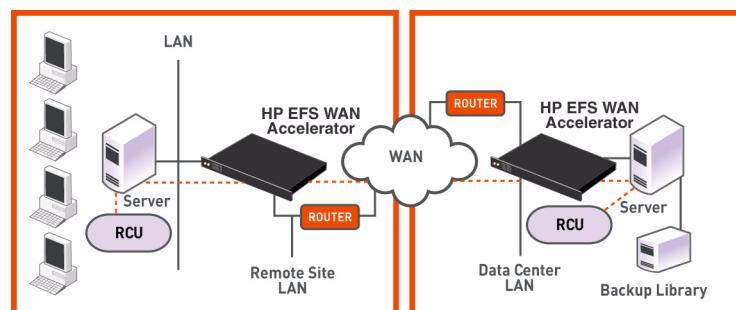
- ◆ “[Overview](#),” next
- ◆ “[Features](#)” on page 10

Overview

The HP EFS RCU is a command line program that runs on Windows 2000 or later. The HP EFS RCU efficiently sends data on high latency links when HP EFS WAN Accelerators are deployed on the link. When a file or directory is copied using the HP EFS RCU, Windows specific file features such as security information (Access Control Lists), NT file system streams, and file attributes can be copied.

You install the HP EFS RCU on a Windows client and server that communicate over a Wide Area Network (WAN). The HP EFS RCU is designed to transfer data over a WAN link by minimizing the number of round-trip handshakes and transferring only modified data blocks when it executes consecutive copies of a set of files and directories.

Figure 1-1. Typical HP EFS RCU Deployment

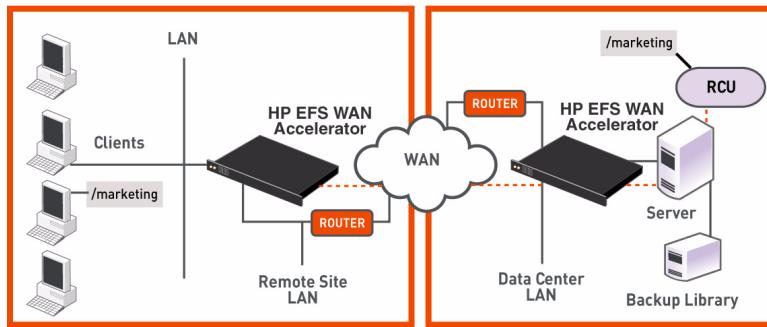


Features

The HP EFS RCU performs the following actions:

- ◆ **Data Transfer.** The HP EFS RCU efficiently transfers data from a client to a specified target directory on a server across the WAN.
- ◆ **Mirroring.** The HP EFS RCU can synchronize a directory on the server with one on the client. Mirroring applies to files changed, added, and deleted, on the client.
- ◆ **Transparent Prepopulation.** With transparent prepopulation the HP EFS RCU *warms* the data store of deployed HP EFS WAN Accelerators with data on the client. When a data store is warm, the HP EFS WAN Accelerator has already seen the data. When data is sent over the WAN only new or modified data is sent, dramatically increasing the rate of data transfer over the WAN.

Figure 1-2. Transparent Prepopulation



NOTE: To prepopulate a data store, you do not need an HP EFS RCU server running on the target HP EFS WAN Accelerator, you simply enable transparent prepopulation in the Management Console.

- ◆ **Static Backup.** With the HP EFS RCU, when a scheduled static backup window occurs, since the data is already prepopulated in the HP EFS WAN Accelerators (using the transparent prepopulation feature), only redundant and newly-generated data is transported to the backup site. Static backup allows enterprise customers to reduce their backup windows.
- ◆ **Monitoring.** The HP EFS RCU can monitor client directories and perform a variety of actions such as mirroring, or copying data, when it detects a change in them.

NOTE: To copy and mirror data you must run the HP EFS RCU on the target machine. (You use the HP EFS RCU on the client and the server.)

CHAPTER 2

Installing and Using the HP EFS Remote Copy Utility

In This Chapter

This chapter describes how to install the HP EFS Remote Copy Utility (HP EFS RCU) and how to copy, mirror, monitor and perform transparent prepopulation of data across the Wide Area Network (WAN). It contains the following sections:

- ◆ “[Installing the HP EFS RCU](#),” next
- ◆ “[Copying Data](#)” on page 12
- ◆ “[Mirroring Data](#)” on page 12
- ◆ “[Transparently Prepopulating CIFS Data](#)” on page 13
- ◆ “[Monitoring Data](#)” on page 14
- ◆ “[Authenticating Clients](#)” on page 15
- ◆ “[Creating Log Files](#)” on page 15
- ◆ “[Scheduling Tasks for the HP EFS RCU](#)” on page 16
- ◆ “[Additional HP EFS RCU Features](#)” on page 17

Installing the HP EFS RCU

You install the HP EFS RCU on the client and server.

To install the HP EFS RCU on a client and server

1. Download the HP EFS RCU from the HP support site located at <http://www.hp.com>.
2. Unzip the HP EFS RCU. You can locate the HP EFS RCU anywhere on your client and server. You can download the Winzip program from www.winzip.com.

Copying Data

The HP EFS RCU efficiently transfers data from a client to a specified target directory on a server across the WAN. First you must start the HP EFS RCU on the server, then you can perform HP EFS RCU actions such as copying, mirroring, or transparent prepopulation.

To copy data

1. On the server, start a command window, select **Start > All Programs > Accessories > Command Prompt**.
2. Move to the **working** directory on the server where you want to copy data.
For example:
`cd e:\working`

3. Start the HP EFS RCU on the server. For example:
`rcu /server`

This command starts the server HP EFS RCU process in the **e:\backup** directory.

4. On the client, start a command window select **Start > All Programs > Accessories > Command Prompt**.

5. Move to the **data** directory. For example:
`cd c:\data`

6. Copy the **data** directory to the server. For example:
`rcu /copy c:\data server1 client1_data`

In this example HP EFS RCU copies the **c:\data** tree on the client to the **client1_data** directory on the server (which is located in the HP EFS RCU working directory on the server).

NOTE: If necessary, the server automatically overwrites any existing files.

Mirroring Data

HP EFS RCU mirroring functions in the following manner:

1. The client specifies to the server which files it wants to mirror.
2. The server begins streaming information about the files on the server side.
3. The client looks at the information on the server and begins comparing it with its files.
4. The client streams information for the files that need updating.

The client HP EFS RCU program uses the following information to compare the client and server files:

- ◆ File attributes (for example read-only, hidden, system, and so forth).
- ◆ File creation or modification time.
- ◆ File size.
- ◆ Security descriptor (only if the **/compareacls** option is invoked.).

If any of the information differs on the client, then the file on the server is updated to match the file on the client.

To mirror data

1. On the server, start a command window, select **Start > All Programs > Accessories > Command Prompt**.
2. Move to the **working** directory on the server where you want to copy data. For example:

```
cd e:\working
```

3. Start the HP EFS RCU on the server. For example:

```
rcu /server
```

This command starts the server HP EFS RCU process in the **e:\working** directory.

4. On the client, start a command window select **Start > All Programs > Accessories > Command Prompt**.
5. Move to the **build** directory. For example:

```
cd c:\build
```

6. Mirror the **build** directory to the server. For example:

```
rcu /mirror c:\build server1 build1
```

In this example, the HP EFS RCU mirrors the contents of the **build1** directory on the server (which is located in the HP EFS RCU working directory) with the **c:\build** directory on the client.

Transparently Prepopulating CIFS Data

In contrast to mirroring and copying, when the HP EFS RCU client performs transparent prepopulation, it is sending data to an HP EFS WAN Accelerator, not to an HP EFS RCU server.

To perform prepopulation, you must enable CIFS transparent prepopulation on the HP EFS WAN Accelerator. You can either use the command-line interface (that is, the **protocol cifs prepop enable** command) or the Management Console (that is, the Setup: Protocols, CIFS page).

The connection from the HP EFS RCU client must flow through a client-side HP EFS WAN Accelerator to reach the target HP EFS WAN Accelerator. You accomplish this by running the HP EFS RCU on a Windows machine that already has its network connections optimized by an HP EFS WAN Accelerator.

To prepopulate data to an HP EFS WAN Accelerator

1. On the client, start a command window, select **Start > All Programs > Accessories > Command Prompt**.
2. Move to the **data** directory. For example:

```
cd c:\data
```

3. Prepopulate data on the HP EFS WAN Accelerators. For example:

```
rcu /prepop c:\data HP EFS WAN Accelerator1
```

In this example, the HP EFS RCU client sends the specified source file or directory to the target HP EFS WAN Accelerator.

Because data flows through both HP EFS WAN Accelerators, the data store on them will be *warm* with the file data being transmitted. A warm HP EFS WAN Accelerator has seen the data, thus only data that has not been transferred before, or has changed, is sent across the WAN. CIFS prepopulation assures high performance for future data transfers, or you can use it to transfer the data store before HP EFS WAN Accelerators are deployed in their final location.

IMPORTANT: To ensure efficient prepopulation, do not warm the HP EFS WAN Accelerator with more data than its disk can hold (depending on the model).

Monitoring Data

The HP EFS RCU can monitor client directories (and their subdirectories) for changes. After a change has been detected the HP EFS RCU performs a mirror, copy, or prepopulation action. The changes can be file updates, file or directory creation and deletion, attribute changes, security changes, and so forth.

To run the HP EFS RCU in monitor mode

1. Select **Start > Run** and browse to the HP EFS RCU.
2. Add the monitor mode arguments to the **Run** command line. For example:

```
c:\temp\rcu\rcu.exe /monitor /monitoridlewait 10 /monitormaxwait 300 /mirror  
c:\build server1 build1
```

In this example, the HP EFS RCU waits for any changes in the **c:\build** directory, or any subtree of it. After a change is detected, the HP EFS RCU waits for 10 seconds where no further changes occur, or 300 seconds after the initial change, whichever comes first. When the time limit is reached, the HP EFS RCU mirrors the client **c:\build** directory tree and the **build1** directory on the server.

NOTE: The HP EFS RCU cannot monitor an entire hard drive, for example: **c:**. You can monitor source directories on network shares (for example, the **\\\localserv\\dir** directory).

If your client action is anything other than a mirror, consider making the idle and maximum wait times long. Otherwise, you might perform frequent large data transfers. While the deployed HP EFS WAN Accelerators significantly reduce the bandwidth required, the transfers still place a load on the client, the HP EFS WAN Accelerators, and the server.

Authenticating Clients

Currently, the HP EFS RCU server has no mechanism to authenticate client connections. By default, the server only allows data in and under the working directory to be altered. You can create restrictions so that only clients from a specified list are allowed.

To authenticate clients

1. On the server, start a command window, select **Start > All Programs > Accessories > Command Prompt**.

2. Move to the **working** directory on the server. For example:

`cd e:\\working`

3. At the command prompt, enter the following command:. For example:

`rcu /server /allowclientip 10.0.0.100 /allowclientip Portola`

where `/allowclientip` specifies the IP address and `/allowclientip` specifies the client machine that you want to allow access to.

Creating Log Files

The HP EFS RCU can log actions to a file or set of files. You can use a rotating log, where it writes to a single log file until a size limit is reached. Upon reaching the size limit it creates a new log file.

A maximum number of log files can also be specified, so that the HP EFS RCU rotates through a small set of files. This feature is more appropriate when the HP EFS RCU is running in server or monitor mode.

To create a log file

1. On the server, start a command window, select **Start > All Programs > Accessories > Command Prompt**.

2. At the command prompt, enter the following command:

`rcu /monitor /mirror c:\\build server1 build1 /logfilename build_watcher.log /logfilenum 10 /logfilemax 10MB`

In this example, the client is monitoring the **c:\build** directory. It is logging to a set of 10 files named **build_watcher.log.1** through **build_watcher.log.10**, with each file restricted to a maximum of 10 megabytes:

Scheduling Tasks for the HP EFS RCU

In addition to running the HP EFS RCU from the Windows command prompt, the HP EFS RCU can be installed on a client machine as a scheduled task using the Windows Task Scheduler. The task scheduler is available in Windows 2000 and more recent versions of the Windows operating system. The following procedures describe how to install the HP EFS RCU and schedule a task running the Windows XP operating system.

In a typical setup, the client HP EFS RCU is scheduled daily, and within a day, it can be scheduled multiple times. When scheduling tasks make sure you put in the proper command line arguments for the client HP EFS RCU.

IMPORTANT: Windows restricts many file names (including the path) to 255 characters.

IMPORTANT: The following procedures assume you have installed the HP EFS RCU on your server.

To schedule tasks for the HP EFS RCU on a client

1. Select **Start > All Programs > Accessories > System Tools > Scheduled Tasks** to display the Scheduled Tasks dialog box.
2. Double-Click **Add Scheduled Task** to display the Scheduled Task Wizard.

TIP: To modify an already scheduled task, double-click the task in the Scheduled Tasks dialog box.

3. Navigate to and select the HP EFS RCU.
4. Perform the steps in the Scheduled Task Wizard. Click **Open advanced properties for this task when I click Finish** to open the Advanced Properties dialog box.
5. In the Advanced Properties dialog box, click the Settings tab and uncheck the **Stop the task if it runs for 72 hours** dialog box.
6. In the Advanced Properties dialog box, click the Task tab to display the HP EFS RCU job.
7. In the **Run** text box, add the command arguments you want to run. For example:

```
C:\temp\rcu\rcu.exe /copy c:\data server1 client1_data
```

TIP: To schedule multiple tasks, click the Schedule tab in the Advanced Properties dialog box and click **Show multiple schedules**.

8. Click **OK** to save your settings.

Additional HP EFS RCU Features

The HP EFS RCU can also run the following features:

- ◆ “[Specifying Time Limits](#),” next
- ◆ “[Specifying Wild Cards](#)” on page 17
- ◆ “[Excluding Files and Directories](#)” on page 17
- ◆ “[Scheduling the RCU to Start at Log in](#)” on page 18

Specifying Time Limits

The HP EFS RCU client can be given a time limit for mirroring, copying, or transparent prepopulation. A time limit can be useful when you want to limit data transfer to a certain time frame (for example, 2 hours after midnight) so that you can control bandwidth.

The following example illustrates a prepopulation of the **c:\data** directory until the entire directory has been transferred, or 1 hour (that is, 3600 seconds) has passed, whichever comes first:

```
rcu /prepop c:\data HP EFS WAN Accelerator1 /timelimit 3600
```

Specifying Wild Cards

Source locations can have a wildcard (*) in the last part of the path (for example, **c:\dir\newfiles***). The wild card can be used with any of the client locations to limit the data sources. The following example mirrors any directory or file starting with **newfile** in the **c:\data** directory. The files appear as **build1\newfile1**, **build1\newfile2**, and so forth on the server.

```
rcu /mirror c:\data\newfile* server1 build1
```

Excluding Files and Directories

Files or directories can also be individually excluded with the **/excludepath** option. The following example copies the **c:\data** subtree to the **newdata** directory on the server (with the exception of anything in or below the **c:\data\private** directory):

```
rcu /copy c:\data server1 newdata /excludepath c:\data\private
```

Or you can specify the following command to exclude everything in or below the **c:\data\private** directory:

```
rcu /copy c:\data server1 newdata /excludepath private
```

Scheduling the RCU to Start at Log in

To schedule the HP EFS RCU to start when you log in

You can schedule the server HP EFS RCU to start whenever your server starts. Make sure to put in the proper command line arguments for the client and server HP EFS RCU.

IMPORTANT: The following procedures assume you have installed the HP EFS RCU on your server.

1. Select **Start > All Programs > Accessories > System Tools > Scheduled Tasks** to display the Scheduled Tasks dialog box.
2. Double-click **Add Scheduled Task** to display the Scheduled Task Wizard.
3. Navigate to and select the HP EFS RCU.
4. Click **When my computer starts** to ensure that the HP EFS RCU is executed each time you log in or reboot your server.
5. Click **Open advanced properties for this task when I click Finish** to open the Advanced Properties dialog box.
6. In the Advanced Properties dialog box, click the Settings tab and uncheck the **Stop the task if it runs for 72 hours** dialog box.
7. Click **OK** to save your settings.

CHAPTER 3

The HP EFS Remote Copy Utility Commands

In This Chapter

This chapter describes the HP EFS Remote Copy Utility (HP EFS RCU) commands and options. It contains the following sections:

- ◆ “Client Actions,” next
- ◆ “Client Options” on page 21
- ◆ “Server Actions” on page 22
- ◆ “Monitoring Actions” on page 23
- ◆ “Logging Actions” on page 24
- ◆ “Global Options” on page 26

Client Actions

The following section describes the commands that govern the client machine. It contains the following commands:

- ◆ “/copy,” next
- ◆ “/mirror” on page 20
- ◆ “/prepop” on page 20

/copy

Description Copies client files to the server.

Syntax /copy <localdir> <server> <serverdir>

Parameters

<localdir>	Specifies the local directory where the files are located.
<server>	Specifies the server where you want to copy files.
<serverdir>	Specifies the server directory where you want to copy files.

Example

```
>rcu /copy c:\data server1 client1_data
```

/mirror

Description Mirrors client and server directories.

Syntax /mirror <localdir> <server> <serverdir>

Parameters

<localdir>	Specifies the local directory where the files are located.
<server>	Specifies the server where you want to mirror files.
<serverdir>	Specifies the server directory where you want to mirror files.

Example

```
>rcu /mirror c:\data server1 client1_data
```

/prepop

Description Prepopulates the HP EFS WAN Accelerator data store with data.

Syntax /prepop <localdir> <HP EFS WAN Accelerator>

Parameters

<localdir>	Specifies the local directory where the files are located.
<HP EFS WAN Accelerator>	Specifies the HP EFS WAN Accelerator where you want to prepopulate the data store.

Example

```
>rcu /prepop c:\data sh1
```

Client Options

The following options are available for the client commands. It contains the following client options:

- ◆ “/compareacls” on page 21
- ◆ “/excludepath” on page 21
- ◆ “/timelimit” on page 21

/compareacls

Description For two files that are the same except for their security descriptors, the HP EFS RCU recognizes them as different and mirrors them from the client to the server. If /compareacls is not specified, HP EFS RCU recognizes the files as the same and does not mirror them.

TIP: You can also use the /compareacls option in the /monitor and /mirror mode.

Syntax /compareacls <path or pattern>

Parameters None

Example >rcu /mirror c:\data server1 newdata /compareacls

/excludepath

Description Excludes the specified path or pattern.

Syntax /excludepath <path or pattern>

Parameters

<path or pattern>	Specifies the path or pattern to exclude.
--------------------------------	---

Example >rcu /copy c:\data server1 newdata /excludepath c:\data\private

/timelimit

Description Halt operation after the time period specified.

Syntax /timelimit <seconds>

Parameters

<seconds>	Specifies the number of seconds before the time limit occurs.
------------------------	---

Example

```
>rcu /prepop c:\data HP EFS WAN Accelerator1 /timelimit 3600
```

Server Actions

The following section describes the commands you can perform on the server machine. It contains the following commands:

- ◆ “/server,” next
- ◆ “/serverdebug” on page 22
- ◆ “/allowclienttip” on page 22
- ◆ “/denyclienttip” on page 23

/server

Description Run the HP EFS RCU in server mode.

Syntax /server

Parameters None

Example >rcu /server

/serverdebug

Description If running in server mode, stop running after the first client is processed.

Syntax /serverdebug

Parameters None

Example >rcu /serverdebug

/allowclienttip

Description Allows connections from a given client.

Syntax /allowclienttip <client>

Parameters

<client>	Specifies the client machine.
-----------------------	-------------------------------

Example >rcu /allowclienttip myclient

/denyclienttip

Description Deny connections from a given client machine.

Syntax /denyclienttip <client>

Parameters

<client>	Specifies the client machine.
----------	-------------------------------

Example >rcu /denyclienttip myclient

Monitoring Actions

The following section describes the monitoring commands. It contains the following commands:

- ◆ “/monitor,” next
- ◆ “/monitoridlewait” on page 23
- ◆ “/monitormaxwait” on page 24

/monitor

Description Waits for changes in the local directory, then performs the specified client actions.

Syntax /monitor <client_actions>

Parameters

<client_actions>	Specifies the monitoring actions you want to perform on the client machine.
------------------	---

Example >rcu /monitor /monitoridlewait 10 /monitormaxwait 300 /mirror c:\build server1 build1

/monitoridlewait

Description Specifies the maximum idle time before carrying out the specified client action.

Syntax /monitoridlewait <seconds>

Parameters

<seconds>	Specifies the maximum idle time before performing the specified client action. The default value is 10.
------------------------	---

Example

```
>rcu /monitor /monitoridlewait 10 /monitormaxwait 300 /mirror c:\build  
server1 build1
```

/monitormaxwait

Description	Specifies the maximum time to wait, after a change on the client machine, before performing the client action.
--------------------	--

Syntax	/monitoridlewait <seconds>
---------------	---

Parameters

<seconds>	Specifies the maximum time period to wait before performing the specified client action. The default value is 300.
------------------------	--

Example

```
>rcu /monitor /monitoridlewait 10 /monitormaxwait 300 /mirror c:\build  
server1 build1
```

Logging Actions

The following section describes the logging commands. It contains the following commands:

- ◆ ["/verbose," next](#)
- ◆ ["/quiet" on page 25](#)
- ◆ ["/logfile" on page 25](#)
- ◆ ["/logfilename" on page 25](#)
- ◆ ["/logfilenum" on page 25](#)
- ◆ ["/logfilemax" on page 25](#)

/verbose

Description	Activates verbose logging mode. This command can slow performance of the HP EFS RCU.
--------------------	--

Syntax	/verbose
---------------	-----------------

Parameters	None
-------------------	-------------

Example

```
>rcu /verbose
```

/quiet

Description	Activates quiet logging mode (that is, no output to the console).
Syntax	/quiet
Parameters	None
Example	>rcu /quiet

/logfile

Description	Writes logs to a file. The default file name is rcu.log .
Syntax	/logfile
Parameters	None
Example	>rcu /logfile

/logfilename

Description	Specifies a name of a log file. The default file name is rcu.log .
Syntax	/logfilename <name>
Parameters	

<name>	Specifies the name of the log file.
--------	-------------------------------------

Example	>rcu /logfile /logfilename mylog
----------------	----------------------------------

/logfilenum

Description	Specifies the maximum number of log files to keep. The default value is 10.
Syntax	/logfilename <num>
Parameters	

<num>	Specifies the number of log files to keep.
-------	--

Example	>rcu /logfile /logfilenum 20
----------------	------------------------------

/logfilemax

Description	Specifies the maximum log file size. The default value is 8777 bytes.
--------------------	---

Syntax **/logfilemax <num>**

Parameters

<num>	Specifies the maximum size of the log file in bytes.
--------------------	--

Example `>rcu /logfile /logfilemax 15000`

Global Options

The following section describes the global options available with the HP EFS RCU. It contains the following commands:

- ◆ “/port,” next
- ◆ “/sendbuf” on page 26
- ◆ “/recvbuf” on page 26

/port

Description Specifies the TCP port.

Syntax **/port <port>**

Parameters

<port>	Specifies the port number.
---------------------	----------------------------

Example `>rcu /port 255`

/sendbuf

Description Specifies the TCP send buffer size to use. The default value is 65536.

Syntax **/sendbuf <size>**

Parameters

<size>	Specifies the buffer size.
---------------------	----------------------------

Example `>rcu /sendbuf 85555`

/recvbuf

Description Specifies the receive buffer size. The default value is 65536.

Syntax **/recvbuf <num>**

Parameters

<num>	Specifies the receive buffer size.
--------------------	------------------------------------

Example

`>rcu /recvbuf 855555`

APPENDIX A

Software Licenses

In This Appendix

This appendix contains the copyright and license agreement for the third-party library used in the development of the HP EFS Remote Copy Utility (HP EFS Remote Copy Utility).

log4cxx Library

The HP EFS Remote Copy Utility uses the **log4cxx** library, which is covered under the Apache Software License version 1.1:

Copyright (C) 1999 The Apache Software Foundation. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>).". Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear.
4. The names "log4j" and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior approval from apache@apache.org.
5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Index

Symbols

/allowclienttip 22
/compareacls 21
/copy 19
/denyclienttip 23
/excludepath 21
/logfile 25
/logfilemax 25
/logfilename 25
/logfilenum 25
/mirror 20
/monitor 23
/monitoridlewait 23
/monitormaxwait 24
/port 26
/prepop 20
/quiet 25
/recvbuf 26
/sendbuf 26
/server 22
/serverdebug 22
/timelimit 21
/verbose 24

A

Authenticating clients 15

C

Client actions 19
Client options 21
Copying data 12

D

Data transfer, overview 10
Data, copying 12
Document conventions 4

E

Excluding files and directories 17

F

Features, additional 17

G

Getting help 6
Global options 26

H

Hardware dependencies 5
Help
 technical support 6
HP
 storage web site 7

I

Installing the RCU 11

L

Log files, creating 15
Log in, scheduling to start at 18
Logging actions 24

M

Mirroring data 12
Mirroring data, overview 10
Monitoring actions 23
Monitoring data 14
Monitoring data, overview 10

O

Online documentation 6

R

RCU
 additional features 17
 authenticating clients 15
 client actions 19
 client options 21
 copying data 12
 creating log files 15
 data transfer, overview 10
 excluding files and directories 17
 global options 26
 installing 11
 logging actions 24
 mirroring data 12

mirroring data, overview 10
monitoring actions 23
monitoring data 14
monitoring data, overview 10
scheduling tasks 16
scheduling to start at log in 18
server actions 22
static backup, overview 10
time limits, specifying 17
transparent prepopulation, overview 10
transparently prepopulating data 13
wild cards, specifying 17
reference books, related 5
Related reading 6

S
Scheduling tasks 16
Server actions 22
Software dependencies 5
Software licenses 29
Static backup, overview 10
Support 6

T
Tasks, running scheduled 16
Technical support 6
Time limits, specifying 17
Transparent prepopulation, overview 10
Transparently prepopulating data 13

U
Users, types of 3

W
Wild cards, specifying 17